

ABSTRACT

An apparatus uses transmission antenna diversity to compensate for fading. An encoder according to a first embodiment forms 4 combinations each including 3 symbols so that 4 input symbols should be transmitted only once at each antenna and each time interval, and delivers the combinations to the 3 transmission antennas for 4 time intervals, and two or more symbols selected from the 4 input symbols are phase-rotated by predetermined phase values before being transmitted via the transmission antennas. An encoder according to a second embodiment forms 3 combinations each including 3 symbols so that 3 input symbols should be transmitted only once at each antenna and each time interval, and delivers the combinations to the 3 transmission antennas for 3 time intervals, and two or more symbols selected from the 3 input symbols are phase-rotated by predetermined phase values before being transmitted via the transmission antennas. In this way, the apparatus secures a maximum diversity order and copes with fast fading by reducing transmission latency.